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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207417F / <i>Airborne Warning and Control System (AWACS)</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	67.341	123.925	171.014	0.000	171.014	-	-	-	-	-	-
67411L: <i>Airborne Warning & Control System (AWACS)</i>	-	67.341	123.925	171.014	0.000	171.014	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note
This program, BA 7, PE 0207417F, project 67411L, E-3 AWACS Global Lightning (AGL), is a new start.

A. Mission Description and Budget Item Justification

Mission: E-3 Airborne Warning and Control System (AWACS) is the premier airborne platform providing Battle Management (BM)/Command and Control (C2) for Commander In Chief and combatant commander tasking in joint, allied, and coalition operations, humanitarian relief, and homeland defense. AWACS provides a real-time picture of friendly, neutral, and hostile air activity. Its capabilities include all-altitude/all-weather surveillance of the battle space; early warning of enemy actions; a real-time ability to find, fix, track, and assess airborne or maritime threats; and detection, location, and identification of electronic emitters.

1. E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON): DRAGON completes the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), and European Organization for the Safety of Air Navigation (EUROCONTROL) air traffic control mandated safety of flight capabilities. This program will provide the E-3 fleet with the flight instruments and other avionics for the Required Navigation Performance (RNP), and the surveillance and communication capabilities necessary to maintain continued critical unrestricted access to global airspace. Non-compliance will result in airspace restrictions and denials that will impact AWACS ability to support worldwide responses to situations requiring immediate on-scene BM/C2. DRAGON replaces the existing Diminishing Manufacturing Sources (DMS) Global Positioning System (GPS) Integrated Navigation System (GINS) with a modern Flight Management System (FMS) that will accommodate new capabilities including Mode 5 Identification Friend or Foe (IFF) and Joint Mission Planning System (JMPS). Also included as part of the modification is the addition of data link communications, voice and data link digital radios, and improved visual displays. Additionally, the acquisition of DRAGON flight simulators also contains DMS efforts which include removal of end-of-life software/hardware within simulator systems and move to a modular, common open system architecture that is sustainable and cyber resilient. The simulator effort also implements requirements and standards defined under the Simulator Common Architecture Requirements and Standards (SCARS) initiative. Emphasis on employment of Commercial-Off-The-Shelf (COTS) avionics is expected to lower cost, reduce the tech refresh cycle, and enhance life cycle management. The Engineering and Manufacturing Development (EMD) phase of DRAGON was being executed as a Cooperative Program between the US and NATO.

2. E-3 Electronic Protection (EP): EP will provide improved radar processing in a specific flight environment to meet a classified requirement. EP will replace the radar controller, exciter, receiver, and data processor in the current Radar System Improvement Program (RSIP) system. The EP-processed radar picture will appear on the battle manager's display and is intended to provide APY-2 radar quality to the entire U.S. AWACS fleet. EP also resolves DMSMS and obsolescence concerns with APY-1/APY-2 radar.

UNCLASSIFIED

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<p>3.E-3 Training, Support, and Infrastructure (TSI): The TSI program provides continuing lab operations and maintenance support for AWACS modernization and enhancement across the enterprise, as well as the development and execution of an AWACS Integration and Test Support (AITS) lab transfer acquisition strategy. These activities include managing the AWACS Development Test and Evaluation (DT&E) infrastructure and tracking and monitoring the AWACS support equipment and program Government Furnished Property, while managing the cost, schedule, and performance of the AITS lab transfer plan. The overall DT&E test infrastructure supports development and production projects and maintains facilities to support AWACS aircraft during system and sub-system testing in Seattle, WA, Baltimore, MD, and Oklahoma City, OK, along with Third Party Integration support from The Boeing Company to AWACS customers in the System AITS labs. The TSI assets also support multiple Foreign Military Sales (FMS) projects on a maintenance fee basis, not limited to projects for France, Saudi Arabia and Japan efforts. Key programs include contractual management of the AWACS Avionics Integration Laboratory (AIL) integrated with the Block 40/45 Functional Group configured lab and the AWACS Radar Systems Integration Lab/Software Development Facility (SIL/SDF). These labs provide US, and Foreign Military Sales (FMS) and Direct Commercial Sales customers with a configured development and qualification system and subsystem environment supporting all AWACS system and radar programs. TSI efforts allow new support equipment technologies and test strategies to be analyzed to ensure concurrent capability to sustain existing, modified, and upgraded E-3 equipment.</p> <p>4. E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR): C2ISR system improvements investigate and develop future capabilities of the AWACS weapon system. These efforts also include but are not limited to investigation, analysis, and development to ensure that AWACS successfully integrates with joint and coalition forces in a net-centric environment. C2ISR primarily supports pre-systems acquisition in the areas of materiel solution analysis and technology development. This is accomplished by prototyping and demonstrating capabilities required by the warfighter but also includes developing an E-3 Modernization & Sustainment Roadmap that projects user capability needs, as well as materiel solutions for the user needs. C2ISR also support an analytical comparison of the operational effectiveness, suitability, life-cycle cost and system capabilities of alternative materiel solutions beyond the current AWACS that satisfy an established capability need identified in an Initial Capabilities Document (ICD), Rapid Prototyping Requirements Document (RPRD), or Rapid Fielding Requirements Document (RFRD).</p> <p>5. E-3 Internet Protocol Enabled Communication (IPEC): IPEC will provide the Block 40/45 E-3 with a medium-bandwidth Internet Protocol (IP) communications capability to connect to the Global Information Grid and will support net-centric operations/warfare. IPEC will provide a reliable IP-enabled communication capability to support a shortened digitized kill-chain of time-sensitive targets. The modification will provide a permanent Inmarsat-based IP-enabled communications package supporting warfighter identified requirements for increased bandwidth Secret Internet Protocol Router Network (SIPRNet) and multi-domain networks.</p> <p>6. E-3 Combat Identification (CID) DMS: AWACS' current CID capability is based upon 1960's era technology that has become unsustainable, and requires an update to retain a significant part of AWACS overall mission capability. AWACS will address C2 CID shortfalls with a modern, persistent Airborne Moving Target Indicator (AMTI) BM/C2 combat ID. CID DMS supports the kill chain and decision superiority.</p> <p>7. E-3 Communication Network Upgrade (CNU): CNU will provide a Link 16 capability with high-jam-resistance, high-speed, crypto-secure computer-to-computer connectivity in support of every type of military platform from Air Force fighters to Navy submarines. The current 20 year old Class 2 terminal has sustainability/DMS issues and does not support mandated Crypto Mod (CM) & Freq. Remap (FR). CNU resolves DMS issues, provides CM & FR, Link 16 enhancements & growth for Next Gen Tactical Data Link (TDL). CNU capabilities will be delivered two Phases, comprised of three efforts (MVPs). Phase I: MVP1 (Crypto) will provide Enhanced Link</p>		

UNCLASSIFIED

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<p>16 Crypto and Frequency Mapping, and MVP2 (HPAs) will provide High Powered Amplification of Communications. Phase II: MVP3 (Link 16 Advanced Capabilities) will provide Link 16 Advanced Communications Throughput via Ethernet Connection.</p> <p>8. E-3 Mode 5 Acceleration: Updates flight deck to address known Air Traffic Management restrictions; upgrades the current flight deck transponder to include the Mode 5 capability since DRAGON's IOC 2022/FOC 2028 does not meet the Mode 5 mandate. This subset accelerates the Mode 5 transponder FOC independent of DRAGON.</p> <p>9. E-3 AWACS Communications Integration Program (ACIP): ACIP will provide Mobile User Objective System (MUOS) and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) capability by replacing the existing Have Quick II and DAMA SATCOM radios with new radios capable of communicating via the existing and additional military waveforms as a combined integration program on AWACS. Provides continued compatibility with US and Allied forces using frequency hopping UHF in support of airborne AMTI & BMC2 to COCOMs for Joint, Allied & Coalition ops by maintaining compatibility with CAF / Sister service C2 nodes and theater assets.</p> <p>10. E-3 GPS Upgrade (M-Code): The GPS upgrade provides E-3G AWACS with robust capability to operate in evolving GPS jamming environment. It incorporates M-Code capability into E-3G. As well as provides continued capabilities in GPS jamming environment in support of airborne AMTI & BMC2 to COCOMs for Joint, Allied & Coalition ops. We are compliant with OSD/NII mandate (2006), Public Law 111-383 and FY11 National Defense Authorization Act.</p> <p>11. E-3 AWACS Fifth to Fourth (5th to 4th): 5th to 4th provides the capability for E-3G AWACS to receive 5th generation data via Link 16 and other data feeds, as required. This capability includes the security domain required to integrate the 5th generation data into Mission Computing Software and generate an integrated operational air picture. 5th to 4th addresses gaps and inaccuracies in the Common Tactical Picture (CTP) and improves Situational Awareness (SA) and Battle Management Command and Control (BMC2) decision making by shortening the kill chain for warfighters in a contested environment. This is not a New Start; in FY 2020 program 0604281F, TDNE, project 655262 efforts were transferred to program 0207417F, Airborne Warning and Control System (AWACS), project 67411L in order to properly align requirement with the correct Weapon System.</p> <p>12. E-3 AWACS Global Lightning (AGL): AGL will provide E-3 with high bandwidth Internet Protocol (IP) communication capability leveraging the significant increase in bandwidth capacity using commercial and military SATCOM. AGL will improve current operations with very low latency, jamming resistance, gigabytes per second class bandwidth and enabling future joint mission operations to support a shortened digitized kill-chain of time-sensitive targets.</p> <p>This program element may include necessary emergent civilian pay expenses required to manage, execute, and deliver E-3 AWACS weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605831F. In FY20 \$2.802M expended and in FY21 \$2.441M is forecasted for civilian pay expenses in this program element.</p> <p>This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.</p>		

UNCLASSIFIED

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	
Previous President's Budget	67.996	138.303	173.584	0.000	173.584	
Current President's Budget	67.341	123.925	171.014	0.000	171.014	
Total Adjustments	-0.655	-14.378	-2.570	0.000	-2.570	
• Congressional General Reductions	0.000	-0.226				
• Congressional Directed Reductions	0.000	-14.152				
• Congressional Rescissions	0.000	0.000				
• Congressional Adds	0.000	0.000				
• Congressional Directed Transfers	0.000	0.000				
• Reprogrammings	-0.132	0.000				
• SBIR/STTR Transfer	-0.523	0.000				
• Other Adjustments	0.000	0.000	-2.570	0.000	-2.570	
C. Accomplishments/Planned Programs (\$ in Millions)				FY 2020	FY 2021	FY 2022
Title: E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)				1.362	1.351	0.000
Description: DRAGON: Provides analog to digital cockpit addressing the Federal Aviation Administration (FAA), International Civil Aviation Organization (ICAO), and European Organization for the Safety of Air Navigation (EUROCONTROL) air traffic control mandated safety of flight capabilities. Provides the E-3 fleet with the flight instruments and other avionics for the Required Navigation Performance (RNP), and the surveillance and communication capabilities necessary to maintain continued critical unrestricted access to global airspace.						
FY 2021 Plans: - Complete Development of Motion Trainer Simulator						
FY 2022 Plans: - N/A						
FY 2021 to FY 2022 Increase/Decrease Statement: - Completed EMD Effort						
Title: E-3 Electronic Protection (EP)				12.822	22.710	42.369
Description: EP: Provides improved radar processing in a specific flight environment to meet a classified requirement. Replaces the radar controller, exciter, receiver, and data processor in the current Radar System Improvement Program (RSIP) system.						
FY 2021 Plans:						

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>- Continued Phase 1A rapid prototyping</p> <p>FY 2022 Plans:</p> <p>- Begin Phase 1B of rapid prototyping</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p> <p>- Increase is due to continuation of rapid prototyping. Phase 1B is designed to include a larger breadth of work than Phase 1A, which was the Risk Reduction effort before the full scale development in Phase 1B. FY22 Phase 1B activities include 4 HW Kits, beginning of the 1B SW development effort, Boeing reach back support, and start up of the 558th MC SW development effort.</p>				
<p>Title: E-3 Training, Support and Infrastructure (TSI)</p> <p>Description: Training, Support, and Infrastructure (TSI): Provides continuing management support for AWACS modernization and enhancement to include managing the AWACS Development Test and Evaluation (DT&E) and Production infrastructure and tracking and monitoring the AWACS vendor's core mission and aircrew training, support equipment and program Government Furnished Property, as well as providing Third Party Integration support from The Boeing Company to the AWACS Enterprise.</p> <p>FY 2021 Plans:</p> <p>TSI continued to maintain and provide DT&E labs to AWACS programs, support AWACS development and production programs lab integration & test efforts. Provided system lab support, integration, and test to current AWACS programs. Supported Third Party Integration efforts in The Boeing Company labs in Oklahoma and Washington. Supported AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and. Additionally, supported Suitability and Effectiveness program and the execution of the AITS lab transfer acquisition strategy.</p> <p>FY 2022 Plans:</p> <p>TSI will continue to maintain and provide DT&E labs to AWACS programs and support AWACS development and production programs lab integration & test efforts. Will provide system lab support, integration, and test to current AWACS programs and support Third Party Integration efforts in The Boeing Company labs in Oklahoma and Washington. Will continue to support AWACS and other OSD mandated interoperability testing and support mandatory E-3 Operational, Safety, and Suitability and Effectiveness program. Additionally, will continue to support the execution of the AITS lab transfer acquisition strategy.</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>		8.974	14.389	11.390

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
- Funding decrease as strategy has shifted to retain Boeing AIL in Seattle rather than move to Boeing OKC. Costs associated with anticipated relocation were removed, but this reduction was largely offset by use of Option 2 on System AITS 2 support contract.				
<p>Title: E-3 Command and Control, Intelligence, Surveillance and Reconnaissance (C2ISR)</p> <p>Description: Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR): Investigate and develops future capabilities of the AWACS weapon system to include but are not limited to investigation, analysis, and development to ensure that AWACS successfully integrates with joint and coalition forces in a net-centric environment. Primarily supports pre-systems acquisition in the areas of materiel solution analysis and technology development (i.e. risk reduction activities).</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - Continue to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning - Continue to execute cooperative Independent Research and Development <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> - Continue to conduct engineering / integration studies to determine required modifications and associated costs to upgrade and support risk reduction activities for program planning - Continue to execute cooperative Independent Research and Development <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p> <ul style="list-style-type: none"> - Decrease in funding due to decreased volume of risk reduction activities in support of potential POM initiatives as well as previous risk reduction activities moving into Rapid Fielding and no longer requiring C2ISR funding 		5.723	29.587	4.214
<p>Title: E-3 Internet Protocol Enabled Communication (IPEC)</p> <p>Description: Internet Protocol Enabled Communication (IPEC): Provides the Block 40/45 E-3 with a medium-bandwidth Internet Protocol (IP) communications capability to connect to the Global Information Grid and supports net-centric operations/warfare. Provides a reliable IP-enabled communication capability to support a shortened digitized kill-chain of time-sensitive targets.</p> <p>FY 2021 Plans:</p> <ul style="list-style-type: none"> - N/A <p>FY 2022 Plans:</p>		0.923	0.000	0.000

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
- N/A				
<p>Title: E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS)</p> <p>Description: Combat Identification (CID) Diminishing Manufacturing Sources (DMS): Addresses C2 CID shortfalls with a modern, persistent Airborne Moving Target Indication (AMTI) BM/C2 combat ID. Supports the kill chain and decision superiority.</p> <p>FY 2021 Plans: - Continue SW and sub-system level development; begin sub-system level integration</p> <p>FY 2022 Plans: - Complete SW and sub-system level development; prepare for Alpha Phase II RFP release</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: - Funding increase is due to the continuing prototype development of the CID system. In FY22, Alpha Phase (AP) will finalize design. AP will complete in Q3FY22 with a demonstration of a working prototype. Progressing from Phase I to Phase II the program will buy material to build, integrate and test a full system prior to full scale production.</p>		15.032	0.313	27.711
<p>Title: E-3 Communication Network Upgrade (CNU)</p> <p>Description: Communication Network Upgrade (CNU): Provides a Link 16 capability with high-jam-resistance, high-speed, crypto-secure computer-to-computer connectivity in support of every type of military platform from Air Force fighters to Navy submarines.</p> <p>FY 2021 Plans: - Continue rapid prototyping and development effort (MVP1 Crypto), AFSIT and JIT Testing, HPA Prototyping (MVP2 HPAs)</p> <p>FY 2022 Plans: - Beginning rapid prototyping and development of Phase II (MVP3 Link 16 Advanced Capabilities)</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: - Decrease due to completion of Rapid Prototyping Phase I (MVP1 (Crypto) and MVP2 (HPAs))</p>		16.095	29.290	22.096
<p>Title: E-3 Mode 5 Acceleration</p> <p>Description: Mode 5 Acceleration: Updates flight deck to address known Air Traffic Management restrictions; upgrades the current flight deck transponder to include the Mode 5 capability. Accelerates the Mode 5 transponder FOC independent of DRAGON.</p>		5.043	3.616	0.000

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>FY 2021 Plans: - Complete rapid prototyping and development effort</p> <p>FY 2022 Plans: - N/A</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: - Decrease due to completion of prototyping</p>				
<p>Title: E-3 AWACS Communications Integration Program (ACIP)</p> <p>Description: AWACS Communications Integration Program (ACIP)Development: Provides Mobile User Objective System (MUOS) and Second Generation Anti-Jam Tactical UHF Radio for NATO (SATURN) capability by replacing the existing Have Quick II and DAMA SATCOM radios with new radios capable of communicating via the existing and additional military waveforms as a combined integration program on AWACS.</p> <p>FY 2021 Plans: - Complete risk reduction and begin prototyping development effort</p> <p>FY 2022 Plans: - Continue prototyping development effort</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement: - Increase in funding due to beginning of rapid prototyping effort</p>		1.367	14.883	24.194
<p>Title: E-3 AWACS GPS Upgrade (M-Code)</p> <p>Description: AWACS GPS Upgrade (M-Code): Provides E-3G AWACS with robust capability to operate in evolving GPS jamming environment. Incorporates GPS M-Code capability into E-3G and provides continued capabilities in GPS jamming environment in support of airborne AMTI & BMC2 to COCOMs for Joint, Allied & Coalition ops.</p> <p>FY 2021 Plans: - Begin risk reduction effort</p> <p>FY 2022 Plans: - Continue risk reduction and begin prototyping development effort</p> <p>FY 2021 to FY 2022 Increase/Decrease Statement:</p>		0.000	0.180	11.040

UNCLASSIFIED

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
- Funding increase due to beginning of rapid prototyping effort				
Title: E-3 AWACS Fifth to Fourth (5th to 4th)		0.000	7.606	27.000
Description: E-3 AWACS Fifth to Fourth (5th to 4th): 5th to 4th provides the capability for E-3G AWACS to receive 5th generation data via Link 16. This capability includes the security domain required to integrate the 5th generation data into Mission Computing Software and generate an integrated operational air picture. 5th to 4th addresses gaps and inaccuracies in the Common Tactical Picture (CTP) and improves Situational Awareness (SA) and Battle Management Command and Control (BMC2) decision making by shortening the kill chain for warfighters in a contested environment.				
FY 2021 Plans: - Risk reduction efforts & analysis to prepare for Rapid Prototyping RFP release.				
FY 2022 Plans: - Rapid Prototyping & Development contract award.				
FY 2021 to FY 2022 Increase/Decrease Statement: - Increase is due to the start of the Rapid Prototyping phase to support building up the contractor's facility to simulate a Link-16, Mission Computing environment for Software Development, System Test/Integration, and Cyber Activities for the end-to-end 524 solution.				
Title: E-3 AWACS Global Lightning (AGL)		0.000	0.000	1.000
Description: E-3 AWACS Global Lightning (AGL): AGL will provide E-3 with high bandwidth Internet Protocol (IP) communication capability leveraging the significant increase in bandwidth capacity using commercial and military SATCOM. AGL will improve current operations with very low latency, jamming resistance, gigabytes per second class bandwidth and enabling future joint mission operations to support a shortened digitized kill-chain of time-sensitive targets.				
FY 2021 Plans: N/A				
FY 2022 Plans: Conduct engineering/integration studies to determine required modifications and associated cost to upgrade and support risk reduction activities for program planning. Complete flight demonstration.				
FY 2021 to FY 2022 Increase/Decrease Statement: Increase due to New Start				
Accomplishments/Planned Programs Subtotals		67.341	123.925	171.014

UNCLASSIFIED

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D. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u> <u>Base</u>	<u>FY 2022</u> <u>OCO</u>	<u>FY 2022</u> <u>Total</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• APAF 05 Line Item E00300: <i>E-3</i>	102.092	135.740	162.960	-	162.960	-	-	-	-	-	-
• APAF 05 Line Item E34045: <i>Airborne Warning and Control System</i>	34.240	53.343	42.392	-	42.392	-	-	-	-	-	-
• APAF 06 Line Item 000999: <i>Initial Spares/Repair Parts</i>	13.892	21.264	21.689	-	21.689	-	-	-	-	-	-

Remarks

E. Acquisition Strategy

The modernization of the AWACS weapon system consists of multiple capability upgrades that are developed and fielded on competitive and sole source contracts. Full and open competition is explored for all new efforts where market research indicates opportunities exist.

Air Force Program Executive Officer (PEO) for PEO Digital (AFLCMC HB) is the Milestone Decision Authority (MDA) for AWACS Programs, with the exception of the E-3 Block 40/45 Upgrade. The E-3 Block 40/45 Upgrade MDA is the Secretary of the Air Force, with authority delegated to the Assistant Secretary of the Air Force (Acquisition) [SAF/AQ]. Of note, E-3 Block 40/45 Upgrade has completed development activities, so it has no 3600 funding and thus not otherwise referenced in this document. The Decision Authority for AWACS Mid Tier Acquisition (MTA) programs is delegated to the E-3 Systems Program Manager (SPM). Air Force Life Cycle Management Center (AFLCMC) is the Contracting Authority for the AWACS portfolio and provides Contracts, Legal, and Comptroller Support.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
E-3 DMS Replacement of Avionics for Global Operations and Navigation (DRAGON)	SS/FPIF	L3 : Arlington, TX	-	1.362	Mar 2020	1.351	Jan 2021	-		-		-	-	-	-
E-3 Electronic Protection (EP)	SS/CPFF	GTRI : Atlanta, GA	-	-		4.005	Nov 2020	-		-		-	-	-	-
E-3 Electronic Protection (EP) Rapid Prototyping Alpha Phase 1A	C/FFP	AFLCMC/ACI OTA to SOSSEC : Salem, NH	-	6.405	Jun 2020	8.997	Feb 2021	-		-		-	-	-	-
E-3 Electronic Protection (EP) Rapid Prototyping Alpha Phase 1B	C/CPIF	TBD : TBD	-	-		7.753	Oct 2021	35.592	Nov 2021	-		35.592	-	-	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance (C2ISR)	SS/ Various	BAH & Various : Washington, DC	-	3.940	Jan 2020	24.867	Jan 2021	2.040	Jan 2022	-		2.040	-	-	-
E-3 Command and Control, Intelligence, Surveillance, and Reconnaissance GTRI Study (C2ISR)	SS/CPFF	GTRI : Atlanta, GA	-	0.348	Feb 2020	0.291	Feb 2021	-		-		-	-	-	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Risk Reduction	SS/CPFF	Raytheon : Fort Wayne, IN	-	5.689	Apr 2020	-		-		-		-	-	-	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) Prototype Development	MIPR	DMEA : McClellan, CA	-	-		-		2.176	Nov 2021	-		2.176	-	-	-
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (DMS) SW and	SS/CPFF	Raytheon : Fort Wayne, IN	-	9.019	Aug 2020	-		21.966	Jan 2022	-		21.966	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sub-System Level Development															
E-3 Combat Identification (CID) Diminishing Manufacturing Sources (SMS) SW Dev	Various	76 SWES : Tinker AFB, OK	-	-		-		1.938	Jan 2022	-		1.938	-	-	-
E-3 Internet Protocol Enabled Communication (IPEC)	SS/ Various	Boeing : Oklahoma City, OK	-	0.629	Nov 2020	-		-		-		-	-	-	-
E-3 Communication Network Upgrade (CNU)	Various	Space & Naval Warfare Sys : San Diego, CA	-	0.248	Jan 2020	0.505	Jan 2021	0.250	Jan 2022	-		0.250	-	-	-
E-3 Communication Network Upgrade (CNU) GTRI	Various	GTRI : Atlanta, GA	-	8.409	Feb 2020	12.778	Feb 2021	10.256	Feb 2022	-		10.256	-	-	-
E-3 Communication Network Upgrade (CNU) Boeing	Various	Boeing : Oklahoma City, OK	-	0.312	Feb 2021	2.195	Feb 2021	1.045	Feb 2022	-		1.045	-	-	-
E-3 Communication Network Upgrade (CNU) SW Dev	Various	76th SWES : Tinker AFB, OK	-	2.465	Jan 2020	1.500	Jan 2021	2.035	Jan 2022	-		2.035	-	-	-
Mode 5 Acceleration	MIPR	DMEA : McClellan, CA	-	3.499	Aug 2020	3.158	Feb 2021	-		-		-	-	-	-
ACIP Rapid Prototyping Alpha Phase	TBD	TBD : TBD	-	1.373	Jan 2020	8.803	Aug 2021	16.689	Jan 2022	-		16.689	-	-	-
ACIP Rapid Prototyping GFE	MIPR	TBD : TBD	-	-		1.591	Aug 2021	1.373	Jan 2022	-		1.373	-	-	-
AWACS GPS Upgrade (M-Code)	TBD	TBD : TBD	-	-		-		8.240	Jun 2022	-		8.240	-	-	-
Fifth to Fourth (5th to 4th) Risk Reduction	Various	Various : Various	-	-		3.964	Nov 2020	-		-		-	-	-	-
Fifth to Fourth (5th to 4th) Rapid Prototyping GFE	MIPR	Various : TBD	-	-		0.810	Mar 2021	-		-		-	-	-	-

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Air Force **Date:** May 2021

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)
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Product Development (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Fifth to Fourth (5th to 4th) Rapid Prototyping Alpha Phase	C/TBD	TBD : TBD	-	-		-		21.140	Dec 2021	-		21.140	-	-	-
AGL Risk Reduction	TBD	TBD : TBD	-	-		-		1.000	Dec 2021	-		1.000	-	-	-
Subtotal			-	43.698		82.568		125.740		-		125.740	-	-	N/A

Test and Evaluation (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
E-3 Training, Support & Infrastructure (TSI) Systems AITS II	C/Variou	Boeing : Oklahoma City, OK	-	2.254	Jun 2020	3.969	Jan 2021	8.219	Jan 2022	-		8.219	-	-	-
E-3 Training, Support & Infrastructure (TSI) Radar AITS II	C/Variou	Northrop Grumman : Linthicum, MD	-	2.793	Jun 2020	4.801	Jan 2021	4.902	Jan 2022	-		4.902	-	-	-
Subtotal			-	5.047		8.770		13.121		-		13.121	-	-	N/A

Management Services (\$ in Millions)				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(U) Program Management Administration (PMA)	Variou	AWACS Program Office : Hanscom AFB, MA	-	18.596	Jan 2020	32.587	Jan 2021	32.153	Jan 2022	-		32.153	-	-	-
Subtotal			-	18.596		32.587		32.153		-		32.153	-	-	N/A

Project Cost Totals	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
	-	67.341	123.925	171.014	-	171.014	-	-	N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
AWACS PE 0207417F																												
DRAGON IOT&E	█																											
EP Alpha Phase			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
TSI	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
C2ISR	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
CID DMS Alpha Phase			█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
CID DT/OT																												
CNU Beta Decision (Jun 2021)																												
CNU Development	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Mode 5 Development	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Mode 5 Beta Decision (Oct 2021)																												
ACIP Risk Reduction																												
ACIP Prototyping																												
GPS Upgrade (M-Code) Risk Reduction																												
Fifth to Fourth (5th to 4th) Risk Reduction																												
Fifth to Fourth (5th to 4th) Alpha Phase																												
AGL Risk Reduction																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2022 Air Force		Date: May 2021
Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207417F / Airborne Warning and Control System (AWACS)	Project (Number/Name) 67411L / Airborne Warning & Control System (AWACS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
AWACS PE 0207417F				
DRAGON IOT&E	1	2020	2	2020
EP Alpha Phase	3	2020	4	2022
TSI	1	2020	4	2022
C2ISR	1	2020	4	2022
CID DMS Alpha Phase	4	2020	4	2022
CID DT/OT	4	2022	4	2022
CNU Beta Decision (Jun 2021)	3	2021	3	2021
CNU Development	1	2020	4	2022
Mode 5 Development	1	2020	4	2021
Mode 5 Beta Decision (Oct 2021)	4	2020	1	2021
ACIP Risk Reduction	4	2020	2	2021
ACIP Prototyping	4	2021	4	2022
GPS Upgrade (M-Code) Risk Reduction	1	2021	4	2021
Fifth to Fourth (5th to 4th) Risk Reduction	1	2021	3	2021
Fifth to Fourth (5th to 4th) Alpha Phase	1	2022	4	2022
AGL Risk Reduction	1	2022	4	2022